Compressed Natural Gas as a Transportation Fuel

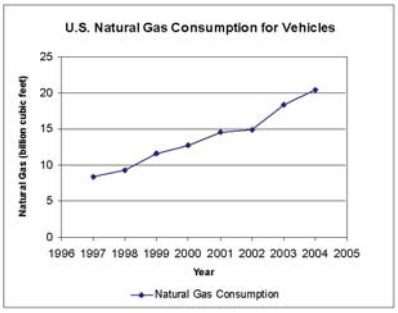



Courtesy Southern California Gas Company

What is CNG?
Compressed natural gas, or CNG, is natural gas under pressure which remains clear, odorless, and and non-corrosive. Although vehicles can use natural gas as either a liquid or a gas, most vehicles use the gaseous form compressed to pressures above 3,100 pounds per square inch.

How is natural gas produced?
The majority of natural gas comes from three types of wells: natural gas and condensate wells, oil wells, and coal bed methane wells. In 2003, California had over 1,200 gas and gas condensate wells operating. Well-extracted natural gas requires a cleanup process before it can fuel vehicles or heat residences.

Where does natural gas come from?
Over 99 percent of the natural gas used in the U.S. comes from domestic or other North American sources. However, increasing demand for natural gas in power plants will require new supplies from non-North American countries, increasing our dependence on foreign sources of energy. The Energy Information Administration (EIA) predicts that by 2025, more than 15 percent of our natural gas supplies will be imported from countries other than Canada and Mexico.



How is natural gas delivered to transportation customers in California?
California produces 15.4 percent of its natural gas, and the rest is imported by pipeline from Canada and the Rocky Mountain and Southwestern states. Gas utilities such as PG&E, Socal Gas, and SDG&E distribute the fuel to customers. Most CNG stations are owned and operated by private companies and local governments.

How is natural gas stored?
In smaller fueling locations and on vehicles, CNG is stored in thick-walled steel, aluminum, or composite tanks built to last over 20 years.

Is natural gas flammable?
When released, compressed natural gas will mix with air and become flammable only when the mixture is within 5 to 15 percent natural gas. When the mixture is less than 5 percent natural gas, it doesn't burn. When the mixture is more than 15 percent natural gas, there is not enough oxygen to allow it to burn. Because natural gas is lighter then air, it quickly dissipates when released from tanks.


City of Burbank's 24-hour CNG Fueling Station

What are the benefits of using natural gas in transportation?
Natural gas is produced both world-wide and domestically at relatively low cost and is cleaner burning than diesel fuel. Natural gas vehicles show an average reduction in ozone-forming emissions of 80 percent compared to gasoline vehicles.

What vehicles use natural gas?
CNG vehicles have been introduced in a wide variety of commercial applications, from light-duty trucks and sedans, like taxi cabs, to heavy-duty vehicles like transit buses, street sweepers and school buses. In California, transit agency buses are some of the most visible CNG vehicles.

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Where is CNG fuel available in California?

CNG Street Sweeper
Courtesy of R.F. Dickson Company, Inc.

With the consumption of CNG increasing nationwide 145 percent over the past six years, the fueling infrastructure for natural gas vehicles continues to grow. California has over 200 CNG fueling stations. In Southern California alone, there are over 100 public fueling stations in major metropolitan areas from Los Angeles to the Mexican border. Another 50 stations are now under construction.

To locate commercial CNG stations near you, please visit the California Natural Gas Vehicle Coalition at http://www.cngvc.org/ngv/CNGVC.nsf/bytitle/cal.htm.

California CNG Fueling Stations
Courtesy of the California Natural Gas Vehicle Coalition

How much does CNG cost?

Socal Gas estimates CNG currently costs about 25 to 30 percent less than gasoline. Currently, PG&E charges approximately $1.37 per therm, equivalent to about $1.75 per gasoline gallon, for CNG used as a motor fuel.

What types of projects has the Energy Commission funded?

The Energy Commission has provided over $4.0 million in grant cost-share funding for about 40 CNG fueling stations, the incremental cost of light duty vehicles, and purchase of 369 school buses. The Energy Commission has also funded research and development to improve the performance of natural gas engines. For more information visit our website a http://www.energy.ca.gov

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